

has a spectrum with broad peaks and no dispersion, which is indicative of a collapsed but disordered and fluctuating structure or non-specific association. All seven mutant proteins retain their ability to bind IgG as measured by binding to an IgG-Sepharose affinity column. The stability and native-like character of  $\Delta h_{0.9}[-1.50\text{\AA}]$  and  $\Delta h_{1.0}[+1.50\text{\AA}]$  indicate that the sequence selection algorithm is sufficiently robust to tolerate  $\Delta h$  perturbations that are as large as 15% of  $G\beta 1$ 's native height super-secondary structure parameter value of 10  $\text{\AA}$ .--

In the Claims:

Please cancel claim 1 without prejudice or disclaimer.

Please add the following claims:

--30. A computer readable memory that upon execution by a computer processor carries out the following functions:

- a) alters at least one supersecondary structure parameter value of a protein backbone structure;
- b) correlates a group of potential rotamers for residue positions of said protein backbone structure; and
- c) analyzes the interaction of each of said rotamers with all or part of the remainder of said protein to generate a set of optimized protein sequences.

31. A computer readable memory according to claim 30 wherein said ranking module includes a van der Waals scoring function component.